

WORKING DRAFT

Personal Protective Equipment (Respiratory)

General

Name

ID# 1

Avon CT12 Special Forces Respirator



Technology

Stock Number

Protection Type

Equipment Category

Availability

Current User(s)

Manufacturer

Manufacturer Type

Developer

Source

Respirator; designed to provide respiratory, eye, and face protection

Size 1: 70046/18/1

Size 2: 70046/18/2

Size 3: 70046/18/3

Respiratory and percutaneous (CT12)

Respirator, canister

In production since 1995

Various police forces and security services in USA and worldwide

Avon Technical Products Protection Group

Bathroad, Melksham, Wiltshire SN12 8AA

Contact: Mr. M. Hoban

+44 (0) 1225 896375 (Tel)

Foreign

Avon Technical Products Protection Group

The JGW Group

10640 Main Street

Suite 200

Fairfax, VA 22030

703-352-3400 (Tel)

POC: Jack O'Neil

e-mail: joneil@jgwgroup.com

website: www.jgwgroup.com

Safety Systems Inc.

630-653-1103 (Tel)

POC: Charlie Bicek

Certification

CT12/CTF12: NIOSH approval number TC-14G-0255 (August 9, 1999)

CT12/DPF12: NIOSH approval in process for CW/BW/TIMs protection

Operational Parameters

Chemical Warfare (CW)

Agents Protected Against

Biological Warfare (BW)

Agents Protected Against

Toxic Industrial Materials

(TIMs) Protected Against

Not CW agents (unless fitted with full NBC filter)

NIOSH approval in process for CT12 with DPF12 filter

Not suitable (unless fitted with full NBC filter)

NIOSH approval in process for CT12 with DPF12 filter

Riot control agents, CS, CN, OC (when fitted with CTF12 filter)

NIOSH approval in process for CT12 with DPF12 filter

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Duration of Protection

Depends on exposure time and challenge concentration

Recommended Use(s)

Riot control

Physical Parameters**Sizes Available**

Small, medium, and large

Weight

1 lb without filter and 1.4 lb with filter

Package Size and Volume

370 cu in per unit (packed singly)

Power Requirements

None

Material Type

Impermeable butyl rubber facepiece, polycarbonate eyepiece, and fabric head harness

Construction Type

Molded rubber facepiece and polycarbonate eyepiece

Color

Black

Logistical Parameters**Ease of Use**

Easy to put on and remove mask; easy to clean; compatible with other equipment. Sight correction available for standard mask. Very low breathing resistance.

Consumables

CTF12 filter (future: DPF12 filter)

Maintenance Requirements

Cleaning and disinfection

Shelf Life

7 yr to 10 yr

Transportability

No special requirements. Easily transported.

Operational Limitations

Not specified

Environmental Conditions

Designed to operate under all environmental conditions: arctic to tropic and/or jungle. Not for underwater use.

Unit Cost

Not specified

Maintenance Cost

Maintenance and repair at unit level. Spares and toolkit are available.

Warranty

1 yr

Don/Doff Information

None required

Use/Reuse

Mask: clean and reuse. Filter: dispose (consumable).

Launderability

Clean in mild disinfectant and hot soapy water

Accessories

Filter and carrier

Special Requirements**Training Requirements**

1/2 h of training is required

Training Available

Maintenance training is available

Manuals Available

User manual

Surveillance Testing

Inspection after cleaning. Approval inspection of valves.

Requirements**Support Equipment**

CTF12 filter

Testing Information

Available from Avon upon request

Applicable Regulations

NIOSH and OSHA

Health Hazards

None

Communications Interface

Not specified

Capability**EOD Compatibility**

Not specified

WORKING DRAFT

General

Name

ID# 2

NBC FM12 Respirator



Technology

Stock Number

Respirator; canister (left and right handed canister mountings)

AMF12 (canister) 4240-21-912-5397

Dutch:

Size 1: 4240-99-882-1553

Size 2: 4240-99-062-2181

Size 3: 4240-99-501-1596

Denmark:

Size 1: 4240-99-888-3404

Size 2: 4240-99-330-1579

Size 3: 4240-99-219-2665

Norway:

Size 1: 4240-99-215-9778

Size 2: 4240-99-547-8423

Size 3: 4240-99-662-8071

Protection Type

Equipment Category

Availability

Current User(s)

Manufacturer

Respiratory (FM12)

Respirator and canister

In production since 1992

Norwegian, Danish, Dutch, Portugal, and Singapore Defense Forces

Manufacturer Type

Developer

Source

Avon Technical Products Protection Group
Bathroad, Melksham, Wiltshire SN12 8AA
POC: Mr. M. Hoban
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Foreign

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Safety Systems Inc.
630-653-1103 (Tel)
POC: Charlie Bicek

Certification

FM12/AMF12: Approved by Defense Departments of National Customers
by NATO Triptych

FM12/CT12: NIOSH approval number TC-14G-0255 (November 15,
2000)

WORKING DRAFT

FM12/DP12: NIOSH approval in process for CW/BW/TIMs protection

Operational Parameters

**Chemical Warfare (CW)
Agents Protected Against**

All classical CW agents (when fitted with AMF12 or C2A1 NBC filter; or DPF12 filter in future)

**Biological Warfare (BW)
Agents Protected Against**

All classical BW agents (when fitted with AMF12 or C2A1 NBC filter, or DPF12 filter in future)

**Toxic Industrial Materials
(TIMs) Protected Against**

Protection against riot control agents, organic vapors and acid gases (when fitted with CTF12 filter or future DPF12 filter)

**Duration of Protection
Recommended Use(s)**

Depends on exposure time and challenge concentration
Riot control

Physical Parameters

Sizes Available

Small, medium, and large

Weight

1 lb without filter and 1.6 lb with filter

Package Size and Volume

370 cu in per unit (packed singly)

Power Requirements

None

Material Type

Impermeable butyl rubber facepiece, polycarbonate eyepiece, and fabric head harness

Construction Type

Molded rubber facepiece and polycarbonate eyepiece

Color

Black

Logistical Parameters

Ease of Use

Easy to put on and remove mask; easy to clean; compatible with other equipment. Sight correction available for standard mask. Very low breathing resistance.

Consumables

CTF12, AMF12, or C2A1 NBC Filters (MSA and Racal) or DPF12 (future)

Maintenance Requirements

Cleaning and disinfection

Shelf Life

7 yr to 10 yr

Transportability

No special requirements. Easily transported.

Operational Limitations

Not specified

Environmental Conditions

Designed to operate under all environmental conditions: arctic to tropic/jungle. Not for underwater use.

Unit Cost

Not specified

Maintenance Cost

Not specified

Warranty

1 yr

Don/Doff Information

None required

Use/Reuse

Mask: clean and reuse. Filter: dispose (consumable).

Launderability

Clean in mild disinfectant and hot soapy water

Accessories

Filter and carrier; high flow fail-safe drinking system

Special Requirements

Training Requirements

1/2 h of training is required

Training Available

Maintenance training is available

Manuals Available

User manual

**Surveillance Testing
Requirements**

Inspection after cleaning. Approval inspection of valves.

Support Equipment

CTF12, AMF12, or C2A1 filters (future DPF12 filter)

WORKING DRAFT

Testing Information

Available from Avon upon request

Applicable Regulations

NIOSH and OSHA

Health Hazards

Environmental considerations: Filter contains metals (copper/zinc).

Dispose in accordance with local regulations.

Communications Interface

Optional secondary speech transmitter to allow use of communications equipment

Capability**EOD Compatibility**

Not specified

WORKING DRAFT

General

Name

ID# 3

NBC SF10 Respirator



Technology

Respirator; a cheek mounted screw-in plug gives access to a second canister mount allowing the use of an air-escape bottle for conditions of oxygen depletion. Low profile coated polycarbonate eyepieces with enhanced impact resistance.

Stock Number

Size 1: 4240-99-146-7929

Size 2: 4240-99-774-1621

Size 3: 4240-99-083-1292

Size 4: 4240-99-785-7309

Protection Type

Respiratory (SF10)

Equipment Category

Respirator and canister

Availability

Commercially available

Current User(s)

British Armed Forces. Special Forces in UK and USA.

Manufacturer

Avon Technical Products

Protection Group

Bathroad, Melksham, Wiltshire SN12 8AA

POC: Mr. M. Hoban

+44 (0) 1225 896375 (Tel)

Manufacturer Type

Foreign

Developer

Avon Technical Products Protection Group

Source

The JGW Group

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POC: Jack O'Neil

e-mail: joneil@jgwgroup.com

website: www.jgwgroup.com

Safety Systems Inc.

630-653-1103 (Tel)

POC: Charlie Bicek

SF10/RC670: NIOSH number TC-14G-177 (November 12, 1993)

Certification

Operational Parameters

Chemical Warfare (CW)

Not CW agents (unless fitted with NBC filter)

Agents Protected Against

Biological Warfare (BW)

Not suitable (unless fitted with full NBC filter)

Agents Protected Against

Toxic Industrial Materials

Riot control agents, CS, and CN (when fitted with RC670 filter)

(TIMs) Protected Against

WORKING DRAFT

Duration of Protection	Depends on exposure time and challenge concentration
Recommended Use(s)	Riot control
<u>Physical Parameters</u>	
Sizes Available	XS through L
Weight	1.1 lb without filter and 1.5 lb without filter
Package Size and Volume	370 cu in per unit (packed singly)
Power Requirements	None
Material Type	Impermeable butyl rubber facepiece, and fabric head harness. Eyepieces: Low profile coated polycarbonate eyepieces with enhanced impact resistance.
Construction Type	Molded rubber facepiece. Secondary tinted lenses that fit to the outside of the respirator providing additional protection against flash and fragments.
Color	Black
<u>Logistical Parameters</u>	
Ease of Use	Easy to put on and remove mask; easy to clean; compatible with other equipment. Sight correction available for standard mask. Very low breathing resistance.
Consumables	Filters
Maintenance Requirements	Cleaning and disinfection
Shelf Life	7 yr to 10 yr
Transportability	No special requirements. Easily transported.
Operational Limitations	Not specified
Environmental Conditions	Designed to operate under all environmental conditions: arctic to tropic/jungle. Not for underwater use.
Unit Cost	Not specified
Maintenance Cost	Maintenance and repair at unit level. Spares and toolkit are available.
Warranty	1 yr
Don/Doff Information	None required
Use/Reuse	Mask: clean and reuse. Filter: dispose (consumable).
Launderability	Clean in mild disinfectant and hot soapy water
Accessories	Filter and carrier
<u>Special Requirements</u>	
Training Requirements	1/2 h of training is required
Training Available	Maintenance training is available
Manuals Available	User manual
Surveillance Testing Requirements	Inspection after cleaning. Approval inspection of valves.
Support Equipment	RC 670 CS filter canister Canister thread: NATO standard (STANAG 4155) Available from Avon upon request
Testing Information	NIOSH and OSHA
Applicable Regulations	None
Health Hazards	Not specified
Communications Interface Capability	Not specified
EOD Compatibility	Not specified

WORKING DRAFT

General

Name

ID# 4

Avon NBC-SCBA-Option



Technology

The S10, SF10, CT12, or FM12 mask may be changed from negative to positive pressure simply by exchanging the standard front cover for one containing the biased exhale valve option. In the Avon respirators, the unique folded acoustic horn-shaped primary speech module (PSM) houses the normal exhalation valve within a cone. The outer edge of the cone forms a seat for a second spring-loaded exhalation valve, giving a positively biased exhalation pressure. The front cover of the PSM, suitably modified, provides a simple means of holding the positive pressure exhalation valve in place.

Stock Number

Not specified

Protection Type

Respiratory

Equipment Category

SCBA—a simple modification for the S10 and FM12 families of military respirator that enables the masks to be used with either a conventional filter or a positive pressure demand valve, instantly switching from one to the other.

Availability

In production

Current User(s)

Various police forces and security services in the USA.

Manufacturer

Australian Special Forces.

Avon Technical Products Protection Group

Bathroad, Melksham, Wiltshire SN12 8AA

POC: Mr. M. Hoban

+44-0-1225-896375 (Tel)

Manufacturer Type

Foreign

Developer

Avon Technical Products Protection Group

Source

The JGW Group

10540 Main Street

Suite 200

Fairfax, VA 22030

703-352-3400 (Tel)

POC: Jack O'Neil

Safety Systems Inc.

630-653-1103 (Tel)

POC: Charlie Bicek

Certification

Not specified

Operational Parameters

Chemical Warfare (CW)

Not CW agents (unless fitted with full NBC filter, or DPF12 filter in future)

Agents Protected Against

WORKING DRAFT

Biological Warfare (BW)	Not suitable (unless fitted with full NBC filter, or DPF12 filter in future)
Agents Protected Against	Riot control agents, CS, CN, and OC (when fitted with CTF12 filter, or DPF12 filter in future)
Toxic Industrial Materials (TIMs) Protected Against	Depends on exposure time and challenge concentration
Duration of Protection	Anti-terrorist operation, hostage retrieval, and in confined space
Recommended Use(s)	
<u>Physical Parameters</u>	
Sizes Available	Not applicable
Weight	Not specified
Package Size and Volume	Not specified
Power Requirements	None
Material Type	Not specified
Construction Type	Not specified
Color	Black
<u>Logistical Parameters</u>	
Ease of Use	The positive pressure demand valve has a unique twist and lock connector, whereas the military masks have the standard NATO screw thread. An off-the-shelf adapter enables the demand valve to screw into the standard filter canister thread.
Consumables	Filters
Maintenance Requirements	Cleaning and disinfection
Shelf Life	Not specified
Transportability	No special requirements. Easily transported.
Operational Limitations	Not specified
Environmental Conditions	Designed to operate under all environmental conditions: Arctic to tropic and/or jungle. Not for underwater use.
Unit Cost	Not specified
Maintenance Cost	Maintenance and repair at unit level. Spares and toolkit are available.
Warranty	1 yr
Don/Doff Information	None required
Use/Reuse	Mask: clean and reuse. Filter: dispose (consumable).
Launderability	Clean in mild disinfectant and hot soapy water
Accessories	Filter and carrier, secondary speech transmitter (SST); special tool kit required to convert NBC SF10 Respirator
<u>Special Requirements</u>	
Training Requirements	1/2 h of training is required
Training Available	Maintenance training is available
Manuals Available	User manual
Surveillance Testing Requirements	Inspection after cleaning. Approval inspection of valves.
Support Equipment	None
Testing Information	Available from Avon upon request
Applicable Regulations	NIOSH and OSHA
Health Hazards	None

WORKING DRAFT

Communications Interface Capability

A secondary speech transmitter (SST) is screwed into one port and the filter canister into the other

EOD Compatibility

Not specified

WORKING DRAFT

General

Name	<i>NBC CoolAir SCBA</i>
ID# 5	Picture Not Available
Technology	SCBA feeds at full flow 100 ml at any altitude. Developed to counter the heat stress of operations in a PPE suit.
Stock Number	Not specified
Protection Type	Respiratory
Equipment Category	SCBA with integral cooling suit
Availability	Commercially available 1 h and 2 h systems available
Current User(s)	NASA and U.S. Navy
Manufacturer	Aerospace Design and Development POC: Kristina Gier 970-535-0385 (Tel)
Manufacturer Type	Domestic
Developer	Aerospace Design and Development
Source	Life Safety Systems 343 Soquel Ave Suite 317 Santa Cruz, CA 95062 POC: Bill Conklin 831-728-9090 (Tel) b@lifesafetysys.com
Certification	Not specified

Operational Parameters

Chemical Warfare (CW) Agents Protected Against	Yes (agents not specified)
Biological Warfare (BW) Agents Protected Against	Yes (agents not specified)
Toxic Industrial Materials (TIMs) Protected Against	Not specified
Duration of Protection	1 h and 2 h systems available
Recommended Use(s)	HAZMAT; any decontamination situation.

Physical Parameters

Sizes Available	One size
Weight	28 lb loaded with 1 h air and cooling supply.
Package Size and Volume	23.5 in x 13 in x 5.5 in
Power Requirements	None
Material Type	Not specified
Construction Type	Not specified
Color	Not specified

Logistical Parameters

Ease of Use	No operator controls
Consumables	Oxygen replenishment
Maintenance Requirements	Monthly testing

WORKING DRAFT

Shelf Life	5 yr with annual tank test
Transportability	Requires a support vehicle with recharge capability at scene for extended use
Operational Limitations	Not specified
Environmental Conditions	Operates in all environments
Unit Cost	Approximately \$55K
Maintenance Cost	Not specified
Warranty	1 yr full warranty and 5 yr labor
Don/Doff Information	Not specified
Use/Reuse	Not specified
Launderability	Not specified
Accessories	Not specified
<u>Special Requirements</u>	
Training Requirements	1 h of training is required
Training Available	Yes. At Aerospace, no charge; at user location, \$1200 per day per man plus expenses.
Manuals Available	User manual
Surveillance Testing Requirements	Monthly testing
Support Equipment	None
Testing Information	Available from Aerospace Design and Development
Applicable Regulations	Not specified
Health Hazards	Not specified
Communications Interface Capability	Not specified
EOD Compatibility	Not specified

WORKING DRAFT

General

Name	<i>SuperCritical Air Mobility Pack (SCAMP*) Self Contained Breathing Apparatus (SCBA)</i>
ID# 6	Picture Not Available
Technology	SCBA feeds at full flow 100 ml at any altitude. Developed to counter the heat stress of operations in a PPE suit.
Stock Number	Not specified
Protection Type	Respiratory
Equipment Category	SCBA and body cooling suit
Availability	Military and commercial
Current User(s)	NASA and U.S. NAVY
Manufacturer	Aerospace Design and Development POC: Kristina Gier 970-535-0385 (Tel)
Manufacturer Type	Domestic
Developer	Aerospace Design and Development
Source	Life Safety Systems 343 Soquel Ave Suite 317 Santa Cruz, CA 95062 POC: Bill Conklin 831-728-9090 (Tel) b@lifesafetysys.com
Certification	Not specified

Operational Parameters

Chemical Warfare (CW) Agents Protected Against	Not specified
Biological Warfare (BW) Agents Protected Against	Any decontamination situation chemical, biological, nuclear, and HAZMAT
Toxic Industrial Materials (TIMs) Protected Against	Any decontamination situation chemical, biological, nuclear, and HAZMAT
Duration of Protection	1 h systems available now. 2 h systems available in six months.
Recommended Use(s)	This product is ideal for use in any contaminated environment for chemical, biological, nuclear, HAZMAT rescues. Lightweight, small profile tank allows rapid access to and egress from confined spaces.

Physical Parameters

Sizes Available	Not specified
Weight	28 lb loaded with 1 h air and cooling supply
Package Size and Volume	23.5 in x 13 in x 5.5 in
Power Requirements	None
Material Type	Not specified
Construction Type	Not specified
Color	Not specified

Logistical Parameters

Ease of Use	No operator controls
Consumables	O2 replenishment

WORKING DRAFT

Maintenance Requirements	Monthly testing
Shelf Life	5 yr with annual tank test
Transportability	Recommend 6 unit system with O2 loading system. Requires a support vehicle with recharge capability at scene for extended use.
Operational Limitations	Any decontamination situation chemical, biological, nuclear, and HAZMAT. Rugged heavy duty components.
Environmental Conditions	Not specified
Unit Cost	Approximately \$55K dependent on accessories ordered
Maintenance Cost	Quarterly test
Warranty	1 yr full warranty and 5 yr labor
Don/Doff Information	Not specified
Use/Reuse	Not specified
Launderability	Not specified
Accessories	Not specified
<u>Special Requirements</u>	
Training Requirements	1 h; SCBA and mask operational knowledge
Training Available	At our location no charge. At your location \$1.2K /d per man plus expenses.
Manuals Available	Standard manuals
Surveillance Testing Requirements	Standardized quarterly test
Support Equipment	Not specified
Testing Information	Aerospace Design and Development
Applicable Regulations	None
Health Hazards	Not specified
Communications Interface Capability	Not specified
EOD Compatibility	Not specified

WORKING DRAFT

General

Name

ID# 7

Biomarine BioPak 60 Rebreather



Technology

SCBA; closed circuit self-contained breathing apparatus that maintains positive pressure in the mask. It recirculates the major portion of the user's exhaled gas. A small oxygen cylinder provides make-up gas to a breathing chamber. The user inhales the gas into a silicone facepiece. The user's exhaled breath passes through a carbon dioxide absorbent and back into the breathing chamber, where fresh oxygen is added. The replenished gas is now available for the next inhalation.

Stock Number

Not specified

Protection Type

Respiratory

Equipment Category

SCBA, rebreather

Availability

Commercial

Current User(s)

HAZMAT, police and fire, tunneling and mining rescue, Japanese National Police, industrial users to include waste treatment plants, and chemical plants

Manufacturer

Biomarine Inc.
A Neutronics Company
456 Creamery Way
Exton, PA 19341-2532

Manufacturer Type

Domestic

Developer

Biomarine Inc.

Source

www.neutronicsinc.com
POC: Ted Beck
610-524-8800 (Tel)
610-524-8807 (Fax)
e-mail: ted.beck@neutronicsinc.com

Certification

NIOSH/MSHA Certification TC-13F-371 and TC-13F-372 for use in temperatures as low as +15 °F

Operational Parameters

Chemical Warfare (CW)

Not specified

Agents Protected Against

Biological Warfare (BW)

Not specified

Agents Protected Against

Toxic Industrial Materials (TIMs) Protected Against

System will protect against most TIMs

Duration of Protection

1 h (60 min)

Recommended Use(s)

Hazardous waste remediation, specialty fire fighting applications, mine rescue, and tunnel rescue

WORKING DRAFT

Physical Parameters

Sizes Available	One size
Weight	25 lb (11.25 kg)
Package Size and Volume	13.8 in L x 18.5 in H x 6.6 in W
Power Requirements	Not specified
Material Type	High-impact fire-retarding Macralon shell; neoprene hoses; anti-oxidant silicone rubber facepiece; optional fire-resistant aramid harness and straps, and soft pack case
Construction Type	Not applicable
Color	Orange

Logistical Parameters

Ease of Use	Simple to use. All controls and displays are easily accessible. Extremely comfortable, lightweight, long duration, and durable.
Consumables	Sodasorb CO ₂ scrubber and oxygen to recharge the cylinders
Maintenance Requirements	Most repairs and testing can be done in the field. User maintenance requirements are minimized.
Shelf Life	20 yr to 25 yr with proper care and maintenance
Transportability	Easily transported
Operational Limitations	1 h
Environmental Conditions	Can be used in all environmental conditions inside a Level A suit. Can be used in most all environmental conditions outside a Level B suit.
Unit Cost	\$3.0K, includes mask and case
Maintenance Cost	Maintenance and spare parts are minimal cost
Warranty	3 yr on unit. 1 yr on all rubber parts.
Don/Doff Information	Buddy system recommended. Donning/doffing time approximately 1 min to 3 min (not including Level A suit).
Use/Reuse	CO ₂ scrubbing material. (SodaSorb Lime must be discarded after each use. Scrubber assembly is refilled with fresh SodaSorb material after each use). Oxygen cylinder is recharged after each use.
Launderability	Not applicable
Accessories	Not specified

Special Requirements

Training Requirements	User training required (approximately 2 h to 4 h depending on class size). Benchman training required (approximately 4 h) for maintenance personnel only. User recertification/refresher recommended annually. Benchman recertification recommended every 3 yr.
Training Available	Factory authorized training with each purchase. Refresher training by authorized trainers only.
Manuals Available	Yes, for both user and benchman
Surveillance Testing Requirements	Normal turn-around maintenance and visual inspection
Support Equipment	Not specified
Testing Information	Not specified
Applicable Regulations	Not specified
Health Hazards	Not specified

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Communications Interface

Not specified

Capability

EOD Compatibility

The U.S. Army EOD uses the BioPak 240 under the STEPO Program. The BioPak 240 is used by several bomb squads as well as Tech Escort, OSIA, DC Capitol Police, and others (see current users).

WORKING DRAFT

General

Name

ID# 8

Biomarine BioPak 240 Rebreather



Technology

SCBA; closed circuit self-contained breathing apparatus that maintains positive pressure in the mask. It recirculates the major portion of the user's exhaled gas. A small oxygen cylinder provides make-up gas to a breathing chamber. The user inhales the gas into a silicone facepiece. The user's exhaled breath passes through a carbon dioxide absorbent and back into the breathing chamber, where fresh oxygen is added. The replenished gas is now available for the next inhalation.

Stock Number

Not specified

Protection Type

Respiratory

Equipment Category

SCBA/rebreather. The BioPak 240 includes a case, mask, and manual, but the mask must be ordered as a separate line item.

Availability

Commercial

Current User(s)

The BioPak 240 is widely used by the U. S. Government and Military. The BioPak was designed for mine rescue applications in the late 1980s. From its introduction, it has been tested and used in many military and government applications. The following is a partial list of users and applications of the BioPak:

- 1) Self-Contained Toxic Protection Outfit (STEPO) The BioPak was tested for this program in 1988. The total number of systems to be produced for the STEPO program is 1,350. Their primary user is Army EOD for disposal of Toxic Agents in fifty-three sites throughout the United States and Europe.
- 2) The On Site Inspection Agency (OSIA) uses systems for inspection during verification of missile treaties in the former Soviet Union.
- 3) Washington, DC Capitol Police Bomb Squad. Their systems are for protection of the Capitol and associated facilities.
- 4) Philadelphia City Bomb Squad. Their systems are used in conjunction with the operation of the city's Bomb Squad.
- 5) Domestic Preparedness/Weapons of Mass Destruction Program: Atlanta, GA; Arlington, VA; San Antonio, TX; Dallas and Ft. Worth, TX; and Jersey City, NJ has purchased and been trained on the BioPak.
- 6) Duquesne Light Nuclear Power Plant has over 100 systems used in their facility. Their containment building is sub-atmospheric emergency fire fighting, and requires SCBA. The BioPak 240 gives them the long duration required to perform maintenance work. They are approved to use their units for emergency firefighting.
- 7) Japanese National Police Authority. We modified our standard BioPak 60 to meet their needs in responding to chemical agent events, such as Sarin Gas attacks in subways. After gaining acceptance of our changes to the BioPak 60, we made it our standard unit. The

WORKING DRAFT

	changes were also adopted by some city fire departments such as Nagoya.
	8) The BioPak 240 and 60 are widely used in mining and tunneling.
	9) The Boston Fire Department has over 50 BioPak 240 units for tunneling. The Massachusetts State Police has over 80 BioPak 60 units for use in the new Ted Williams tunnel.
	10) Government/Military Classified Applications Information on these items are on a need to know basis.
	11) Tech Escort. The U.S. Army uses the BioPak 240 for escorting munitions when a long-term breathing apparatus is required.
Manufacturer	Biomarine Inc. A Neutronics Company 456 Creamery Way Exton, PA 19341–2532
Manufacturer Type	Domestic
Developer	Biomarine Inc.
Source	www.neutronicsinc.com POC: Ted Beck 610–524–8800 (Tel) 610–524–8807 (Fax) e-mail: ted.beck@neutronicsinc.com
Certification	NIOSH/MSHA Certification TC–13F–185 and TC–13F–206 for use in temperatures as low as +15 °F
<u>Operational Parameters</u>	
Chemical Warfare (CW) Agents Protected Against	The Army version of the BioPak 240 was tested with live agent, Sarin/Mustard liquid and vapor. The entire operational system was subject to 24 h testing with live agent and passed all Army requirements.
Biological Warfare (BW) Agents Protected Against	Not specified
Toxic Industrial Materials (TIMs) Protected Against	Will protect against most TIMS
Duration of Protection	4 h (240 min). It is suggested that each BioPak 240 have a spare oxygen cylinder and coolant canister. This allows the BioPak 240 to be immediately “turned around” after use for an additional 4 h of use.
Recommended Use(s)	Hazardous waste remediation, specialty fire fighting applications, mine rescue, and tunnel rescue.
<u>Physical Parameters</u>	
Sizes Available	One size
Weight	35 lb (15.75 kg)
Package Size and Volume	15.8 in L x 24.8 in H x 7.8 in W
Power Requirements	Not specified
Material Type	High-impact fire-retarding NORYL shell; neoprene hoses; anti-oxidant silicone rubber facepiece; optional fire-resistant Kevlar harness and straps, and molded carrying case
Construction Type	Not applicable
Color	Grey

WORKING DRAFT

Logistical Parameters

Ease of Use	Simple to use. All controls and displays are easily accessible. Extremely comfortable due to fully padded harness with multiple adjustments, lightweight, long duration, and durable.
Consumables	LimePak CO ₂ Scrubber and oxygen to recharge the cylinders. Disinfectant cleaner.
Maintenance Requirements	Requires minimum preparation and set-up time. All testing can be done in the field with a minimum of training.
Shelf Life	20 yr to 25 yr with proper care and maintenance
Transportability	Easily transported
Operational Limitations	It is suggested that each BioPak 240 have a spare oxygen cylinder and coolant canister. This allows the BioPak 240 to be immediately “turned around” after use for an additional 4 h of use.
Environmental Conditions	Can be used in all environmental conditions inside a Level A suit. Can be used in most all environmental conditions outside a Level B suit.
Unit Cost	\$5.27K, includes mask and case
Maintenance Cost	Maintenance and spare parts are minimal cost
Warranty	3 yr on unit. 1 yr on all rubber parts.
Don/Doff Information	Buddy system recommended. Donning/doffing time approximately 1 min to 3 min (not including Level A suit).
Use/Reuse	CO ₂ scrubbing material. (LimePak must be discarded after each use. Scrubber assembly is refilled with fresh LimePak material after each use). O ₂ cylinder is recharged after each use.
Launderability	Not applicable
Accessories	Spare O ₂ cylinder and coolant canister, lens insert for clear, fog-free vision for 4 h, and wiper option available.
<u>Special Requirements</u>	
Training Requirements	Approximately 2 h to 4 h (depending on class size) of user training required. Benchman training approximately 4 h required for maintenance personnel only. User recertification/refresher recommended annually. Benchman recertification recommended every 3 yr .
Training Available	Factory authorized training with each purchase. Refresher training by authorized trainers only (users can be certified).
Manuals Available	Yes, for both user and benchman
Surveillance Testing Requirements	Normal turn-around maintenance and visual inspection
Support Equipment	“Blue-ice” insert to keep breathing gas temperature at a comfortable level; spare oxygen cylinder and coolant canister; lens insert for clear, fog-free vision for 4 h; wiper option available; service kit with all required service tools, spares, and lubricants.
Testing Information	Contact the U.S. Army Asst. Program Manager Major Steve Bonk at 703-704-3590 for live agent test data.
Applicable Regulations	Not specified
Health Hazards	Not specified
Communications Interface Capability	Not specified
EOD Compatibility	Not specified

WORKING DRAFT

General

Name

ID# 9

Bullard CC20 Series Airline Respirator



Technology

Unique air delivery system: A unique neck cuff design helps maintain positive pressure inside the hood to aid in keeping contaminants out. As air enters the hood, the inner collar inflates, providing a snug, comfortable fit around the neck and continuous flow of air to the worker's breathing zone. CC20 respirators provide a significantly higher level of protection at a lower cost than cartridge respirators.

Stock Number

Protection Type

Equipment Category

Five models designed to protect workers in diverse job applications

Respiratory

Respirator, airline

CC20 Series hood-style airline respirators consist of five Bullard components; all must be present and properly assembled to constitute a NIOSH-approved respirator. (Approval No. TC-19C-154, Type C).

1. Respirator hood.
2. Headband or head protection.
3. Breathing tube.
4. Flow control device.
5. Breathing air supply hose.

Availability

Current User(s)

Manufacturer

Not specified

Manufacturing, pharmaceuticals, and painting

Bullard

1898 Safety Way

Cynthiana, KY 41031-9303

800-827-0423 (Tel)

606-234-6611 (Tel)

606-234-6858 (Fax)

Manufacturer Type

Domestic

Developer

Bullard

Source

www.bullard.com

POC: Brian Shockley, Market Manager Occupational Health

859-234-6616, ext. 153 (Tel)

859-234-8987 (Fax)

Certification

MSHA/NIOSH for use in Type C applications. Permeation Guide contains permeation data for over 800 chemicals based on the ASTM F739, TC-19C-154, Type C.

Operational Parameters

Chemical Warfare (CW)

Agents Protected Against

Not specified

WORKING DRAFT

**Biological Warfare (BW)
Agents Protected Against
Toxic Industrial Materials
(TIMs) Protected Against**

Not specified

Duration of Protection

Recommended Use(s)

Warning: CC20 respirators are not approved for use in any atmosphere immediately dangerous to life or health (IDLH) or from which the wearer cannot escape without the use of a respirator.

Permeation Guide contains permeation data for over 800 chemicals based on the ASTM F739. Tychem QC and Tychem SL provide splash and liquid penetration protection against many chemicals. Refer to DuPont Permeation Guide for fabric details.

The Dupont Permeation Guide contains permeation data for over 800 chemicals based on the ASTM F739 test method for resistance of protective clothing materials to permeation by liquid or gases under conditions of continuous contact.

Chemical and pesticide handling, pharmaceutical manufacturing, nuclear facilities, spray painting and coating operations.

Physical Parameters

Sizes Available

Not specified

Weight

Not specified

Package Size and Volume

Not specified

Power Requirements

Not specified

Material Type

For increased protection in chemical and pharmaceutical applications, two special models are available. The SICN model is constructed from Tyvek®/Saranex® 23P and the TICSN model is fabricated from Tyvek® QC. Both feature an outer bib covering the shoulders and extending to the waist with side fasteners to keep the bib secured during work operations. Tychem QC and Tychem SL provide splash and liquid penetration protection against many chemicals. Refer to DuPont Permeation Guide for fabric details.

Construction Type

Patented neck cuff inflates for comfortable, dependable seal. Taped seams on both models provide added protection against liquid penetration.

Color

White

Logistical Parameters

Ease of Use

The CC20 hood is lighter and more comfortable than tight fitting facemasks. It covers the entire head, face, and neck - providing splash/overspray protection and making cleanup quick and easy. The CC20 hood does not require fit testing and elaborate record keeping. It also easily accommodates beards, prescription eyewear, or safety glasses.

Not specified

Consumables

Maintenance Requirements

Inexpensive enough to be disposable; durable enough for reuse

Shelf Life

Inexpensive enough to be disposable; durable enough for reuse

Transportability

Not specified

Operational Limitations

A variety of optional climate control devices helps increase productivity by allowing workers to cool or warm incoming air to meet individual comfort requirements

Environmental Conditions

Not specified

Unit Cost

Not specified

Maintenance Cost

Not specified

Warranty

Not specified

Don/Doff Information

Not specified

Use/Reuse

CC20 respirator hoods are durable enough to reuse, yet inexpensive enough to discard after each use, depending on the work application.

WORKING DRAFT

Launderability

Not specified

Accessories

Not specified

Special Requirements

Training Requirements

Not specified

Training Available

Not specified

Manuals Available

Not specified

Surveillance Testing

Not specified

Requirements

Support Equipment

Not specified

Testing Information

Not specified

Applicable Regulations

Not specified

Health Hazards

Not specified

Communications Interface

Not specified

Capability

EOD Compatibility

Not specified

WORKING DRAFT

General

Name

ID# 10

Bullard Spectrum-PDE Pressure Demand Respirator with ESCBA



Technology

Continuous flow; respirator with Escape Air cylinder; Spectrum PDE Combination PD/5 min or 10 min ESCBA for confined spaces and hazardous work environments. Strong, durable harness and waist belt are fire retardant.

Stock Number

Not supplied

Protection Type

Respiratory

Equipment Category

Respirator; escape air cylinder (PD or ESCBA). Respirator operates efficiently with compressed or bottled air as the air source, improving worker mobility. Strong, durable harness and waist belt are fire retardant, providing the worker with an added measure of security on the job. Regulator hose is routed securely over the shoulder, enhancing comfort and safety. Approved with eight quick-disconnect coupler assemblies, providing compatibility with most workplace breathing air systems.

Availability

Commercial

Current User(s)

Manufacturing, painting, and rescuing

Manufacturer

Bullard
1898 Safety Way
Cynthiana, KY 41031-9303
800-827-0423 (Tel)
606-234-6611 (Tel)
606-234-6858 (Fax)

Manufacturer Type

Domestic

Developer

Bullard

Source

www.bullard.com
POC: Brian Shockley, Market Manager Occupational Health
859-234-6616, ext. 153 (Tel)
859-234-8987 (Fax)

Certification

TC-19C-322, TC-19C-354, TC-13F-387, TC-13F-388, and
TC-19C-321

Operational Parameters

Chemical Warfare (CW)

Not specified

Agents Protected Against

Biological Warfare (BW)

Not specified

Agents Protected Against

Toxic Industrial Materials

Not specified

(TIMs) Protected Against

WORKING DRAFT

Duration of Protection

Not specified

Recommended Use(s)

For confined and hazardous atmospheres including those which are IDLH.
For spray painting and general industrial use.

Physical Parameters**Sizes Available**

Small, medium, and large

Weight

Not specified

Package Size and Volume

Not specified

Power Requirements

Not specified

Material Type

Standard harness is made from fire retardant nylon. A benefit for those customers who are using the product in environments where there is potential for flashover.

Construction Type

Not specified

Color

Black

Logistical Parameters**Ease of Use**

Padded shoulder harness is easily adjustable for a comfortable, balanced cylinder. Regulator hose positions securely over the shoulder, keeping close to the worker's body during operations in tight spaces.

Consumables

Not specified

Maintenance Requirements

Not specified

Shelf Life

Not specified

Transportability

Not specified

Operational Limitations

Compatible with a variety of optional climate control assemblies

Environmental Conditions

Not specified

Unit Cost

Not specified

Maintenance Cost

Not specified

Warranty

Not specified

Don/Doff Information

Pressure demand versions feature a "first breath" feature, which permits donning of the respirator without free flow, conserving the air supply

Use/Reuse

Not specified

Launderability

Not specified

Accessories

Regulator with bypass that allows adjustable, continuous flowing air to the worker for comfort and/or defogging the lens, when necessary

Special Requirements**Training Requirements**

Not specified

Training Available

Not specified

Manuals Available

Not specified

Surveillance Testing

Not specified

Requirements**Support Equipment**

Not specified

Testing Information

Not specified

Applicable Regulations

Not specified

Health Hazards

Not specified

Communications Interface

Not specified

Capability**EOD Compatibility**

Not specified

WORKING DRAFT

General

Name

ID# 11

Sabre Tornado® Respiratory System (Airline)



Technology

Stock Number

Protection Type

Equipment Category

Constant flow airline respirator

T-A-Line

Respiratory

Airline: The Tornado airline (T-A-Line) is designed for use with compressed airline sources and also for use with the full range of six Tornado headtops, offering maximum operational flexibility. The unit includes a built-in filter that acts as a silencer to minimize airflow noise and increase wearer comfort. It also acts as a secondary filter that visually signals the user if the air supply contains oil.

Availability

Current User(s)

Manufacturer

Not specified

Industrial and manufacturing

Bullard

1898 Safety Way

Cynthiana, KY 41031-9303

800-827-0423 (Tel)

606-234-6611 (Tel)

606-234-6858 (Fax)

Manufacturer Type

Developer

Source

Domestic

Bullard Sabre LLC.

www.bullard.com

POC: Brian Shockley, Market Manager Occupational Health

859-234-6616, ext. 153 (Tel)

859-234-8987 (Fax)

Not specified

Certification

Operational Parameters

Chemical Warfare (CW)

Agents Protected Against

Biological Warfare (BW)

Agents Protected Against

Toxic Industrial Materials (TIMs) Protected Against

Duration of Protection

Recommended Use(s)

Not specified

Not specified

Not specified

Not specified

Painting and general industrial use

WORKING DRAFT

Physical Parameters

Sizes Available	Sizes available to fit all head types
Weight	Not specified
Package Size and Volume	Not specified
Power Requirements	Not specified
Material Type	Not specified
Construction Type	Not specified
Color	Not specified

Logistical Parameters

Ease of Use	Easily converts to Powered air purifying respirator (PAPR)
Consumables	Not specified
Maintenance Requirements	Not specified
Shelf Life	Not specified
Transportability	Not specified
Operational Limitations	The unit includes a built-in filter that acts as a silencer to minimize airflow noise and increase wearer comfort.
Environmental Conditions	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified
Don/Doff Information	Not specified
Use/Reuse	Not specified
Launderability	Not specified
Accessories	Not specified

Special Requirements

Training Requirements	Not specified
Training Available	Not specified
Manuals Available	Not specified
Surveillance Testing Requirements	Not specified
Support Equipment	Not specified
Testing Information	Not specified
Applicable Regulations	Not specified
Health Hazards	Not specified
Communications Interface Capability	Not specified
EOD Compatibility	Not specified

WORKING DRAFT

General

Name

ID# 12

Sabre Tornado® Respiratory System (PAPR)



Technology

Powered Air-Purifying Respirator (PAPR)

Stock Number

T-Power

Protection Type

Respiratory

Equipment Category

PAPR: The Tornado (T-Power) unit is designed to provide filtered air for the widest range of industrial applications. Other safety features include a battery lock to prevent accidental disconnection and a special on/off switch that requires positive action to turn the unit off.

Availability

Not specified

Current User(s)

Not specified

Manufacturer

Bullard
1898 Safety Way
Cynthiana, KY 41031-9303
800-827-0423 (Tel)
606-234-6611 (Tel)
606-234-6858 (Fax)

Manufacturer Type

Domestic

Developer

Bullard Sabre LLC.

Source

www.bullard.com
POC: Brian Shockley, Market Manager Occupational Health
859-234-6616, ext. 153 (Tel)
859-234-8987 (Fax)

Certification

T-Power units are certified to NIOSH regulations 42 CFR 84

Operational Parameters

Chemical Warfare (CW)

Not specified

Agents Protected Against

Biological Warfare (BW)

Not specified

Agents Protected Against

Toxic Industrial Materials

Not specified

(TIMs) Protected Against

Duration of Protection

Not specified

Recommended Use(s)

Laboratories, pharmaceuticals, agriculture, chemicals, and general industrial

Physical Parameters

Sizes Available

Not specified

Weight

Not specified

Package Size and Volume

Not specified

Power Requirements

Not specified

WORKING DRAFT

Material Type	Not specified
Construction Type	Not specified
Color	Not specified

Logistical Parameters

Ease of Use	Easily converts to airline use
Consumables	Not specified
Maintenance Requirements	The unit is also designed to require no routine maintenance and is tamper resistant. Establish filter change-out schedule specific to your application. Visit www.bullard.com for assistance.
Shelf Life	Not specified
Transportability	Not specified
Operational Limitations	Not specified
Environmental Conditions	Not specified
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	Not specified
Don/Doff Information	Not specified
Use/Reuse	Not specified
Launderability	Not specified
Accessories	Not specified

Special Requirements

Training Requirements	Not specified
Training Available	Not specified
Manuals Available	Not specified
Surveillance Testing Requirements	
Support Equipment	Not specified
Testing Information	Not specified
Applicable Regulations	Not specified
Health Hazards	Not specified
Communications Interface Capability	Not specified
EOD Compatibility	Not specified

WORKING DRAFT

General

Name

SR-100, 60 Minute ESCBA

ID# 13

Picture Not Available

Technology

Chemical based rebreather (KO₂/LiOH). The unit uses a bi-directional rebreathing system in which exhaled gas makes two passes through a CO₂ absorption/oxygen generation canister before the breathing gas is inhaled by the user. Specific amounts of potassium super-oxide (KO₂) and lithium hydroxide (LiOH) are used to produce O₂ and scrub CO₂, respectively, resulting in the production of a minimum of 100 L of O₂.

Stock Number

Q152000006

Protection Type

Respiratory

Equipment Category

ESCBA, escape only

Availability

Commercial

Current User(s)

Not specified

Manufacturer

CSE Corporation
600 Seco Road
Monroeville, PA 15146
800-245-2224 (Tel)
412-856-9203 (Fax)
customerservice@csecorporation.com

Manufacturer Type

Domestic

Developer

CSE with cooperation of MSHA

Source

jgt@csecorporation.com
POC: Mr. Tocci

Certification

NIOSH/MSHA Certification under TC-13F-239. Designed to meet CFR 30, part 75-1714 and CFR 29, 1910,146 Appendix E.

Operational Parameters

Chemical Warfare (CW)

Not specified

Agents Protected Against

Biological Warfare (BW)

Not specified

Agents Protected Against

Toxic Industrial Materials

(TIMs) Protected Against

Protection of workers in confined spaces against toxic gases, oxygen deficiency, and smoke inhalation.

Duration of Protection

Rated Duration: 60 min (minimum) depending on the user's physical work rate. Deliverable O₂: 3.5 ft³/100 L.

Recommended Use(s)

Confined spaces such as manholes, sewers, vaults, tanks, vessels, tunnels, silos, mines, wet wells, waste water, clean rooms, semiconductor labs, and submarines.

Physical Parameters

Sizes Available

Choice of six belt sizes:
Small (28 in to 34 in) to XX-large (51 in to 57 in)
Accessory belt sizes: S, M, L, XL, XXL, and XXXL

Weight

Weight carried: 5.7 lb
Weight in use: 4.9 lb

Package Size and Volume

7-3/4 in x 4 in x 5-1/2 in

Power Requirements

Battery pack

WORKING DRAFT

Material Type	Nylon accessory belt, durable nylon carrying pouch, suspenders, Velcro strap, and reflective strips.
Construction Type	Double stitched nylon and Velcro strap
Color	Not specified
<u>Logistical Parameters</u>	
Ease of Use	Belts sized for perfect fit, load-supporting suspenders
Consumables	Not specified
Maintenance Requirements	Not specified
Shelf Life	10 yr; storage conditions 32 °F to 130 °F
Transportability	Designed to be worn on a belt
Operational Limitations	Not specified
Environmental Conditions	All common outdoor weather conditions
Unit Cost	\$550 per unit Accessories are extra cost
Maintenance Cost	Not specified
Warranty	1 yr
Don/Doff Information	By following the steps written by MSHA/NIOSH, the unit can be donned in less than 20 s when worn on the worker's belt.
Use/Reuse	Yes, by following readiness check
Launderability	Nylon belt and suspenders can be laundered
Accessories	Each unit is supplied complete with a starter oxygen cylinder, goggles, case, and approved pouch. Optional reflective belts, suspenders, and pouches are available.
<u>Special Requirements</u>	
Training Requirements	Training unit, training video
Training Available	Training video
Manuals Available	Training video
Surveillance Testing Requirements	Can be checked instantly by visually inspecting the moisture indicators in the top and bottom covers. The indicators are blue as long as seals are intact. If the seal has been broken, and moisture has contaminated the unit, the moisture indicators will turn pink or white .
Support Equipment	Carrying pouch, suspenders, belt, battery pouch, training video, user manual, acoustics solids movement detector, ASMD spot checker, acoustics solids movement detector kit, and storage box.
Testing Information	Not specified
Applicable Regulations	Not specified
Health Hazards	Not specified
Communications Interface Capability	Not specified
EOD Compatibility	Not specified

WORKING DRAFT

General

Name

ID# 14

AirBoss PSS100 with Flashing Gauge or with Sentinel



Technology

AirBoss PSS100 is designed to shift the weight of the unit from the shoulders to the hips, reducing back strain and increasing stability. The Draeger SCBA utilizes the same pneumatics and technology advanced components found on the AirBoss Evolution unit.

Stock Number

Not specified

Protection Type

Respiratory

Equipment Category

SCBA

Availability

Commercially

Current User(s)

- Miami Dade Fire Department (FL)
305-361-1066/305-596-8634 (Tel)
- Kennet Square Fire Co. (PA)
215-444-8410 (Tel)
- Lester Fire Co. (PA)
610-521-3944 (Tel)
- Thorndale Fire Co. (PA)
610-383-4835 (Tel)
- Lower Providence Township (PA)
610-539-6560 (Tel)

Manufacturer

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275

Manufacturer Type

Domestic/Foreign

Developer

Draeger Limited
Kitty Brewster Industrial Estate
Blyth, Northumberland, United Kingdom NE24 4RG
011-44-167-035-2891 (Tel)

Source

Draeger Safety, Inc.
POC: Julie Malinowski
412-787-8383 (Tel)
800-922-5518 (Tel)
412-787-2207 (Fax)

Certification

NIOSH and MSHA; NFPA compliant to standard 1981/1997 edition;
IPASS II or Sentinel compliant to 1982/1998 edition.

Operational Parameters

Chemical Warfare (CW)

All (agents not specified)

Agents Protected Against

WORKING DRAFT

**Biological Warfare (BW)
Agents Protected Against
Toxic Industrial Materials
(TIMs) Protected Against
Duration of Protection**

All (agents not specified)

All (not specified)

30 min, 45 min, or 60 min, dependent on the type of cylinder selected.
AirBoss Sentinel calculates air supply time based upon actual usage and first warns when 50 % of air is used.

First responders

Recommended Use(s)

Physical Parameters

Sizes Available

One size fits all masks

Weight

Dependent on the type of cylinder selected (from 20 lb to 30 lb with cylinder)

**Package Size and Volume
Power Requirements**

PSS100: 28.5 L in x 11 W in x 7 H in

For Flashing Gauge: 2 N cell batteries.

For Super IPASS II and AirBoss Sentinel: 9 V battery.

Recommend yearly battery charge for all.

Material Type

Lightweight carbon composite backplate; mask available in EPDM and silicone; Kevlar/Nomex harness is fire retardant and passes NFPA flame tests.

Construction Type

Two-piece construction facilitates vertical movement without over-balancing; preformed waist; entire weight of unit carried on hips, not shoulders; sliding point on waistbelt allows stretch and return movement when bending; shoulder straps always properly aligned.

Color

Black/blue

Logistical Parameters

Ease of Use

Two-piece construction facilitates vertical movement without over-balancing; all units with standard comfort pad and quick release coupling; 90 % peripheral vision. The unit is also designed to move with the wearer, both horizontally and vertically. This additional flexibility allows the wearer to work more effectively for longer periods of time, with less fatigue. The revolutionary adjustable 3 position backplate gives the wearer a means to achieve the perfect fit for any torso length.

Consumables

Air for cylinders

Maintenance Requirements

Recommended yearly: Flow and static test, replace ball nose o-ring, check medium pressure. Monthly: Check cylinder pressure. After use: visual inspection, functional and leak test, charge cylinder to correct pressure.

Shelf Life

Lifetime for aluminum cylinders and 15 yr for composite cylinders

Transportability

Easily transported

Operational Limitations

Not specified

Environmental Conditions

Designed to function under extremely harsh conditions; -32 °F to 160 °F
NFPA—1981 Flame test (2000 °F for 10 s)

Unit Cost

\$2K to \$4.6K (depending on unit and options)

Maintenance Cost

Each year: \$1.65 for Ball nose o-ring

Warranty

5/15 limited (5 yr bumper to bumper) (15 yr pressure reducer)

Don/Doff Information

None required

Use/Reuse

Reusable

WORKING DRAFT

Launderability

Clean/disinfect mask and Lung Demand Valve with AirKem 33. Harness can be laundered.

Accessories

For Flashing Gauge: IPASS

On all units: Buddy breather, ChargAir, comfort pad, quick release is optional; auxiliary airline connection; medium pressure connection extension hose and pouch; pressure reducer; radio interface, hair net (NFPA compliant), soft carrying bag, and rapid adaptor.

Special Requirements

Training Requirements

3 h of training required

Training Available

Operational Level I and Maintenance Level II

Manuals Available

Information for use, service manual

Surveillance Testing

See maintenance requirements

Requirements

Support Equipment

Streamlined nonaspirating whistle integrated into gauge assembly

Testing Information

Fit Test Reports, Field of View

Applicable Regulations

NIOSH, MSHA, and NFPA

Health Hazards

Not specified

Communications Interface

Radio interface and voice amplification

Capability

EOD Compatibility

Not specified

WORKING DRAFT

General

Name

ID# 15

AirBoss Evolution with Flashing Gauge or with Sentinel



Technology

This NIOSH certified SCBA often exceeds the standard requirements of NIOSH and NFPA, and offers not only high performance, but reliability, durability, and comfort.

Stock Number

Not specified

Protection Type

Respiratory

Equipment Category

SCBA: The AirBoss Evolution is designed especially for use in professional fire fighting applications. With many options and accessories available, the AirBoss can be tailor-fit to meet specific needs.

Availability

Commercially available

Current User(s)

Memphis Fire Dept, Pittsburgh Bureau of Fire, Miami Fire Department, American River (CA), Mexican Navy, Bayer Fire Department (MO), Puerto Rico Fire Department, Western Taney County (MO), Berkeley Fire Department, Celanese, FMC Corporation Grand Junction Fire Department, Lyndon Fire and Rescue (KY), Nevada County (CA), Cal Energy (CA), Park City Fire Department (UT), Western Kentucky Gas (KY), Humane Fire Department (PA), and Bellagio Hotel (NV), to name several.

Manufacturer

Draeger Safety, Inc.

Manufacturer Type

101 Technology Drive

Developer

Pittsburgh, PA 15275

Domestic/Foreign

Draeger Limited

Kitty Brewster Industrial Estate

Blyth, Northumberland, United Kingdom NE24 4RG

011-44-167-035-2891 (Tel)

Source

Draeger Safety, Inc.

POC: Julie Malinowski

412-787-8383 (Tel)

800-922-5518 (Tel)

412-787-2207 (Fax)

Certification

NIOSH/MSHA

NFPA compliant to standard 1981/1997 edition

IPASS II or Sentinel compliant to 1982/1998 edition

Operational Parameters

Chemical Warfare (CW)

All (agents not specified)

Agents Protected Against

Biological Warfare (BW)

All (agents not specified)

Agents Protected Against

Toxic Industrial Materials

All (not specified)

(TIMs) Protected Against

WORKING DRAFT

Duration of Protection	30 min, 45 min, or 60 min, dependent on the type of cylinder selected
Recommended Use(s)	First responders
<u>Physical Parameters</u>	
Sizes Available	Not specified
Weight	Dependent on the type of cylinder selected (from 20 lb to 30 lb with cylinder)
Package Size and Volume	24.5 L in x 12.5 W in x 6 H in
Power Requirements	For Flashing Gauge: 2 N cell batteries For Super IPASS II and AirBoss Sentinel: 9 V battery Recommend yearly battery charge for all
Material Type	Carbon composite backplate is light and maintains its ergonomic shape throughout the life of the product; Kevlar/Nomex harness is fire retardant and passes NFPA flame tests; and optional padding.
Construction Type	Not specified
Color	Black/blue
<u>Logistical Parameters</u>	
Ease of Use	Universal cylinder strap accommodates all cylinder configurations. Quick release coupling available on second stage regulator line; and 90 % peripheral vision.
Consumables	Air for cylinders
Maintenance Requirements	Recommended yearly: flow and static test, replace ball nose o-ring, replace sintered filter, check medium pressure. Monthly: check cylinder pressure. After use: visual inspection, functional and leak test, and charge cylinder to correct pressure.
Shelf Life	Lifetime for aluminum cylinders and 15 yr for composite cylinders
Transportability	Easily transported
Operational Limitations	Not specified
Environmental Conditions	Designed to function under extremely harsh conditions; -32 °F to 160 °F NFPA—1981 Flame test (2000 °F for 10 s)
Unit Cost	\$2K to \$4.6K (depending on unit and options)
Maintenance Cost	Each year: \$1.65 for ball nose o-ring
Warranty	5/15 limited (5 yr bumper to bumper) (15 yr pressure reducer)
Don/Doff Information	None required
Use/Reuse	Reusable
Launderability	Clean/disinfect mask and Lung Demand Valve with AirKem 33. Harness can be laundered.
Accessories	For Flashing Gauge: IPASS On all units: Buddy breather, ChargAir, comfort pad, quick release is optional; universal cylinder strap accommodates all cylinder configurations; optional high pressure cylinder filling line; auxiliary airline connection, medium pressure connection extension hose and pouch, radio interface, hair net (NFPA compliant), soft carrying bag, and rapid adaptor
<u>Special Requirements</u>	
Training Requirements	3 h of training required
Training Available	Operational Level I and Maintenance Level II
Manuals Available	Information for use and service manual
Surveillance Testing Requirements	See maintenance requirements
Support Equipment	Streamlined nonaspirating whistle integrated into gauge assembly. Whistle sounds in excess of 90 dBA upon activation.

WORKING DRAFT

Testing Information	Fit Test Reports and Field of View
Applicable Regulations	NIOSH and NFPA
Health Hazards	Not specified
Communications Interface	Radio interface and voice amplification
Capability	
EOD Compatibility	Not specified

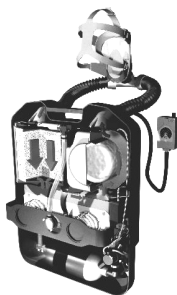
WORKING DRAFT

General

Name

ID# 16

BG-4 w/Mask



Technology

Stock Number

Protection Type

Equipment Category

Availability

Current User(s)

BG-4 w/Mask, cylinder and valve, single use canister and metal case

4055888

Respiratory

Respirator, supplied air

Commercially available (4 wk delivery time)

- Consolidation Coal Company
724- 966-3441 (Tel)
- Twenty Mile Coal Company
970-870-2735 (Tel)
- Kentucky Department of Mines and Minerals
502-573-0140 (Tel)
- Federal Bureau of Investigation (FBI)
- City of Chicago Fire Department
312-747-7234 (Tel)

Manufacturer

Draeger Safety, Inc.
101 Technology Drive
Pittsburgh, PA 15275

Manufacturer Type

Domestic/Foreign

Developer

Draeger Sicherheitstechnik GmbH
Revalstrabe 1
Germany 23560

Source

011-49-451-882-2000 (Tel)

Draeger Safety, Inc.

POC: Julie Malinowski

412-787-8383 (Tel)

800-922-5518 (Tel)

412-787-2207 (Fax)

NIOSH and MSHA

Certification

Operational Parameters

Chemical Warfare (CW)

Not specified

Agents Protected Against

Biological Warfare (BW)

Not specified

Agents Protected Against

Toxic Industrial Materials

Not specified

(TIMs) Protected Against

Duration of Protection

4 h

Recommended Use(s)

Not specified

WORKING DRAFT

Physical Parameters

Sizes Available	Not specified
Weight	33 lb
Package Size and Volume	23.35 in x 18 in x 7.3 in
Power Requirements	9 V battery (4 h to 6 h of operation)
Material Type	Not specified
Construction Type	Not specified
Color	Not specified

Logistical Parameters

Ease of Use	Not specified
Consumables	Soda-lime, filters, and oxygen
Maintenance Requirements	Minimal
Shelf Life	Not specified
Transportability	Not specified
Operational Limitations	Not specified
Environmental Conditions	23 °F to 86 °F (operating temperature) 23 °F to 77 °F @ 30 % to 70 % relative humidity (storage temperature)
Unit Cost	Not specified
Maintenance Cost	Not specified
Warranty	1 yr
Don/Doff Information	None required
Use/Reuse	Reusable
Laundryability	Not specified
Accessories	Not specified

Special Requirements

Training Requirements	8 h to 10 h of training required
Training Available	Yes
Manuals Available	User manual
Surveillance Testing Requirements	RZ test after each use
Support Equipment	None
Testing Information	No information available
Applicable Regulations	Not specified
Health Hazards	Not specified
Communications Interface Capability	Not specified
EOD Compatibility	Not specified